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99mTc nanocolloid indicyanine green

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Introduction: Breast sentinel lymph node biopsy (SLNB) evaluates if cancer has spread outside the breast, by allowing the identification of the node that has the highest probability of harboring metastasis. Once it is identified and removed during surgery, histologic examination looks for the presence of metastasis. If metastasis are identified, the patient will have an axillary dissection performed, if no metastasis are identified, the patient can spare the axillary dissection with its associated morbidity. SLNB procedures are performed with radiotracers or with dyes, or a combination of both. Recently, the hybrid tracer (fluorescent-radioactive) ^{99m}Tc nanocolloid indocyanine green (^{99m}Tc NC ICG) has been described. The aim of our work is to describe our experience with the hybrid tracer in breast SLN biopsy. Materials Patients were injected periareolar subcutaneous in the same quadrant of the lesions. Planar Scintigraphic and SPECT/CT (Mediso Anyscan) images were later acquired. During the SLNB a gamma probe (Europrobe) and our own developed near infrared (NIR) visualization system was used to localize the SLN. This combination allowed surgeons to guide them to the SLN using the acoustic cue provided from the gamma probe and the images from the NIR visualization system. Once the nodes were found they were removed and examined histopathologically. Patients who had positive SLNB underwent axillary dissection.

Results: SLNB with ^{99m}Tc NC ICG allowed us to use their complementary fluorescent and radioactive properties in order to find the SLN. In this way, the gamma probe guided us to the region where the node was, and fluorescence made it easy to remove it and spare the rest of surrounding tissue. In this way we could remove 38 nodes, being 4 positive. All radioactive nodes were fluorescent.

Conclusions: SLNB with ^{99m}Tc NC ICG could be performed without complications, having no adverse effects on patients. The hybrid tracer adds a visual cue with to the procedure aiding surgeons on SLN localization and removal.